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DISTRIBUTION, *Steatogenys* (*ocellatus* n. sp., *elegans, duidae*) 78–91; *Bufoceratias* (*shaoi* n. sp., *wedli, thele*) 98–107; *Atelopus* (*cruciger, vogli*) (*A. vogli* from single local., no recent specimens) 222–234; *Sternopygus branco* n. sp. 245–259; *Bathyraja mariposa* n. sp. (Aleutian Isls.) 305–314; *Pimelodella spelaea* n. sp. (only in one cave) 315–325; *Callichthys serralabium* n. sp. (of all spp. of genus) 336–343; *Oligosoma suteri* (restricted to north New Zealand by eff. of cold incub. temps. on size, growth & surv.) 383–390; *Henochilus wheatlandii* (new specimens expand range) 496–506; *Microhyla palmipes* (discuss change in reported distrib.) 507–524; *Gymnotus coatesi* 525–533; *Hyla* (*feioi* n. sp., *ahenea* n. sp., *ibitipoca*) (of small spp. of *H. circumdata* spp.group) 534–545; *Scorpaenopsis insperatus* n. sp. (extremely limited) 546–550; *Icelinus limbaughi* n. sp. (very limited) 556–561; *Rivulus duckensis* n. sp. (of members of Guyana Shield clade of *Rivulus*) 569–576; *Liolaemus* (*chaltin* n. sp., *puna* n. sp., *alticolor*) (cryptic n. spp. change distrib. of *L. alticolor*) 850–866; *Notropis calabazas* n. sp. (*N. calientis* sp. group) (of *N. calientis* sp. group, n. sp. rare w/ very limited distrib.) 867–874; *Mystus* (*armiger* n. sp., *wolffii*) (reident. of several popns. of *M. wolffii* as *M. armiger* reduces distrib. of *M. wolffii*) 881–885; *Echidna catenata, Gymnothorax* sp. F, *Hoplunnis* sp. D, Myrophinae sp. A, Ophichthini sp. 8, Ophichthini sp. 9 (leptocephali only) (leptoceph. collections informative on spp. divers., esp. for Nettastomatidae & Ophichthyidae where adults unknown) 886–892; *Stenocercus erythrogaster* (redescript. w/ new specimens incl. range extension to Venezuela) 937–941.

ECOLOGY, *Moenkhausia bonita* n. sp. (notes) 68–73; *Dolichallabes microphthalamus, Channallabes apus, Gymnallabes typus* (reduction of fins & skeletal elements for fossorial lifestyle, strongest in *D. microphthalmus*) 108–115; *Gambusia holbrooki, Hyla squirella, Gastrophryne carolinensis* (tdpls. not protected from small fish pred. by hab. complex.) 173–177; *Sternopygus branco* n. sp. (notes) 245–259; *Pimelodella spelaea* n. sp. (hab. charcs., popn. data, condition during dry seas.) 315–325; *Varanus panoptes* (hab., seas. diffs., prey on sea turtle eggs) 370–377; Carettochelyine turtle (fossil) (fossil locality not tropical as Carettochelyines previously assumed to be) 406–411; *Plethodon* (*petraeus, glutinosus*) (patchy distrib. possibly aff. by aggress. interference btwn. sympatric spp.) 488–495; *Henochilus wheatlandii* (hab., diet) 496–506; *Rana palmipes, Ancistrus triradiatus* (rel. btwn. benthic feeding of tdpls. & growth in algiv. catfish,

field exp.) 610–616; *Cottus* (*beldingi, bairdi*) (diffs. in ecol. charcs. of streams w/ both spp. sympatric, each sp. allopatric & neither sp.) 617–623; *Rana* (*lessonae* [parental sp.], *esculenta* [hybridogenic sp.]) (ecol. diffs. in persistance of popns. of hybrids & parentals) 638–646; *Rana* (*catesbeiana, sphenocephala*), *Bufo americanus, Ambystoma maculatum* (bullfrog tdpls. eff. on sympatric amphib. larvae) 683–690; *Liolaemus alticolor* sp. group (10 spp.) (elevational replcmnt. of several spp., ecol. explanation for oviparous & viviparous spp.) 850–866; *Rana sylvatica, Ambystoma maculatum* (variable bottom up & top down ecol. effs. of *R. sylvatica* tdpls. on *A. maculatum* larvae) 929–936.

EGGS, *Leuresthes tenuis* (rapid htchg. events in grunion) 21–27; *Leptodactylus fallax* (oblig. larval oophagy) 128–135; *Bathyraja mariposa* n. sp. (describe egg capsule) 305–314; *Varanus panoptes* (prey on sea turtle eggs) 370–377; *Bufo viridis* (increase clutch size does not decrease egg size) 659–664; *Spicospina flammocaerulea* (process of laying & descript. of eggs & embryos) 893–899.

ELECTRIC ORGAN, *Steatogenys ocellatus* n. sp. (describe discharge) 78–91; *Sternopygus branco* n. sp. (dischg. very low repetition rate compared to congeners) 245–259; *Gymnotus coatesi* (describe discharge) 525–533.

ENDANGERED SPECIES, *Rana* (*catesbeiana, aurora aurora, pertiosa*) (diff. pred. on native frogs by introd. *R. catesbeiana*) 11–20; *Leptodactylus fallax* (intense parental care, oblig. oophagy) 128–135; *Atelopus* (*cruciger, vogli*) (redescripts., severe popn. declines, no recent record of *A. vogli,* propose new category "critically endngrd.") 222–234; *Pimelodella spelaea* n. sp. (distrib. in one cave, conserv. status discussed) 315–325; *Etheostoma* (*Doration*) sp. (spawning beh. & hab., mngmnt. recommends.) 412–417; *Etheostoma* (*Allohistium*) *cinereum* (severe range reduct., genet. diffs. btwn. the 3 popns. should be preserved as 3 mngmnt. units, may be diff. spp.) 632–637; *Ambystoma* (*tigrinum stebbinsi, t. mavortium*) (evid. of introgress. from introd. *A. t. mavortium* into endngrd. *A. t. stebbins*) 783–796; *Clemmys guttata* (home range, hab. use, seas. mvmnts., activ. pttns.) 804–817; *Notropis calabazas* n. sp. (*N. calientis* sp. group) (very rare w/in very limited distrib.) 867–874; *Hoplocephalus bungaroides* (diurnal retreat site selection information, import. in mngmnt. of endngrd. sp.) 916–922.

EVOLUTION, *Pseudobranchus striatus* (alloz. data allow evol. eval. of intrasp. taxon.)136–144; *Phrynocephalus* (*versicolor, przewalskii, frontalis* = *przewalskii,* sp.) (evol. hist. of spp. complex) 199–206; *Rhinichthys* (*osculus, falcatus*) (evol. anal., clad. anal., mtDNA data, rel. to histor. hydrography) 207–221; *Micropterus punctulatus* (discuss. of alternatives to pred. attraction hypoth.) 592–598; *Physalaemus petersi* (evol. of complex calls rel. to larynx morph.) 624–631; *Phrynosoma cornutum* (evol. of blood-squirting as pred. defence) 652–658; *Chanda nama* (converg. evol. for scale-feeding w/ some neotrop. *Roeboides*) 900–904; *Chelonia midas, Caretta caretta* (sea turtle vision evol. converg. w/ some shallow water fishes) 905–911; *Sebastes* (*carnatus, chrysomelas*) (microsat. DNA evid. for sympatric incipient spp.) 923–928.

EXTINCTION, *Atelopus vogli* (possibly extinct) 222–234.

FECUNDITY, *Plethodon cinereus* (trade-offs btwn. current & future fecund.) 28–36; *Bufo viridis* (interrels. btwn. clutch size & egg size, matern. body size & matern. condit.) 659–664; *Oreochromis niloticus* (low but yr.-around reprod. & parental care offsets disadvntg.) 842–849.

FEEDING, *Mycteroperca acutirostris* (feigning dying as predation tactic) 403–405; *Rana palmipes, Ancistrus triradiatus* (rel. btwn. benthic feeding of tdpls. & growth in algiv. catfish, field exp.) 610–616; *Spicospina flammocaerulea* (tdpl. feeding beh.) 893–899; *Chanda nama* (ontogeny of facultative scale-feeding, seas. influence, jaw morph.) 900–904.

FOOD, *Plethodon cinereus* (diff. food levels in trade-offs btwn. current & future reprod.) 28–36; *Moenkhausia bonita* n. sp. (stom. conts. of 2 specimens) 68–73; *Steatogenys ocellatus* n. sp. (stom. conts. of 2 specimens) 78–91; *Wallago micropogon* n. sp. (pisciv., prey listed) 92–97; *Leptodactylus fallax* (oblig. larval oophagy) 128–135; *Crotalus adamanteus* (estim. amount of food required under diff. temps. & body sizes) 145–151; *Sternopygus branco* n. sp. (stom. conts.) 245–259; *Pimelodella spelaea* n. sp. (low food levels for cave fish in dry seas.) 315–325; *Varanus panoptes* (prey on sea turtle eggs, other prey) 370–377; *Tantilla gracilis* (stom. conts. 80% beetles, prey shape chngs. w/ ontog.) 397–402; *Henochilus wheatlandii* (stom. conts., ontogen. shift in diet) 496–506; *Microhyla marmorata* n. sp. (notes on stom. conts.) 507–524; *Gymnotus coatesi* (notes) 525–533; *Knodus geryi* n. sp. (stom. conts. of 2 specimens) 577–582; *Liolaemus chaltin* n. sp. (fecal evid.) 850–866; *Notropis calabazas* n. sp. (*N. calientis* sp. group) (gut morph. & stom. conts.) 867–874; *Chanda nama* (diet shifts both ontogen. & seas., incl. scale-feeding) 900–904.

GENETICS, *Aphredoderus sayanus* (confirm. of unique spawning beh.) 1–10; *Halichoeres* (*cyanocephalus, maculipinna, garnoti, dimidiatus, penrosei*) (gen. divers. compare w/ color pttn. divers., mtDNA data) 770–782; *Sebastes* (*carnatus, chrysomelas*) (gen. diverg. btwn. syntopic color morphs suggests morphs are incipient spp., microsat. DNA data) 923–928.

GEOGRAPHIC LOCALITIES,

Alabama, *Fundulus* (*Xenisma*) (*albolineatus, bifax, stellifer*) 53–61; *Gobionellus oceanicus* 281–297; *Erimystax* (*dissimilis, insignis, x-punctatus*) 351–356.

Alaska, *Bathyraja mariposa* n. sp. 305–314; *Lopholiparis* n. gen. *flerxi* n. sp. (Aleutian Isls.) 551–555.

Angola, *Channallabes apus* 108–115.

Argentina, *Bathyraja cousseauae* n. sp. (Atlantic cont. shelf) 326–335; *Liolaemus* (*chaltin* n. sp., *puna* n. sp.) 850–866; *Trichomycterus pseudosilvinichthys* n. sp. 875–880.

Arizona, *Rhinichthys osculus* 207–221; *Oncorhynchus gilae apache* 378–382; *Phrynosoma cornutum* 652–658; *Ambystoma* (*tigrinum stebbinsi, t. mavortium*) 783–796.
Arkansas, *Fundulus* (*Xenisma*) (*catenatus*) 53–61; *Erimystax* (*harryi, x-punctatus*) 351–356.
Atlantic Ocean, *Bufoceratias wedli* 98–107; *Eustomias* (*Neostomias*) (*jimcraddocki* n. sp. [NW], *monodactylus* [NW], *filifer* [NW], *tetranema* [Sargasso Sea]) 116–121; *Gobionellus* (*occidentalis* [E], *oceanicus* [W]) 281–297; *Bathyraja cousseauae* n. sp. (SW) 326–335; *Pachycara* (*saldanhai* n. sp., *thermophilum*) (Mid-Atl. Ridge) 562–568; *Phyllorhinichthys* (*micractis* [N], *balushikini* n. sp.) 797–803; *Scorpaena* (*calcarata, inermis, melasma*) (W) 818–824.
Australia, *Acanthophis praelongus* (NT) 357–363; *Varanus panoptes* (NT) 370–377; *Scorpaenopsis insperatus* n. sp. (NSW) 546–550; *Spicospina flammocaerulea* (WA) 893–899; *Hoplocephalus bungaroides, Cryptophis nigrescens* (NSW) 916–922.
Bahamas, *Halichoeres* (*maculipinna, garnoti*) 770–782; *Phyllorhinichthys balushikini* n. sp. 797–803.
Barbados, *Echidna catenata, Gymnothorax* sp. F, *Hoplunnis* sp. D, Myrophinae sp. A, Ophichthini sp. 8, Ophichthini sp. 9 (leptocephali only) 886–892.
Belize, *Gobionellus oceanicus* 281–297; *Halichoeres* (*cyanocephalus, maculipinna*) 770–782.
Benin, *Gobionellus occidentalis* 281–297.
Bermuda, *Halichoeres garnoti* 770–782.
Bismarck Archipelago, *Platymantis* (*mamusiorum* n. sp., *macrosceles*) (New Britain) 825–841.
Bolivia, *Liolaemus alticolor* 850–866.
Borneo, *Wallago* (*maculatus* [Sabah], *leerii* [Kal.]) 92–97; *Mystus wolffii* (Kal.) 881–885.
Brazil, *Moenkhausia bonita* n. sp. 68–73; *Steatogenys* (*ocellatus* n. sp., *elegans, duidae*) 78–91; *Sternopygus branco* n. sp. 245–259; *Gobionellus* (*oceanicus, stomatus*) 281–297; *Pimelodella spelaea* n. sp. 315–325; *Callichthys serralabium* n. sp. 336–343; *Mycteroperca acutirostris* 403–405; *Henochilus wheatlandii* 496–506; *Gymnotus coatesi* 525–533; *Hyla* (*jeioi* n. sp., *ahenea* n. sp., *ibitipoca*) 534–545; *Rivulus duckensis* n. sp. 569–576; *Knodus geryi* n. sp. 577–582; *Physalaemus petersi* 624–631; *Halichoeres* (*cyanocephalus, maculipinna, dimidiatus, penrosei*) 770–782.
California, *Leuresthes tenuis* 21–27; *Rhinichthys osculus* 207–221; *Hypomesus* (*transpacificus, nipponensis*), *Pogonichthys macrolepidotus, Onchorhynchus tshawytscha, Menidia beryllina* 479–487; *Icelinus limbaughi* n. sp. 556–561; *Sebastes* (*carnatus, chrysomelas*) 923–928.
Cambodia, *Wallago micropogon* n. sp. 92–97.
Cameroon, *Gymnallabes typus* 108–115; *Gobionellus occidentalis* 281–297.
Canada, *Esox lucius* (Ont., Alb.) 743–757.
Caribbean Sea, *Halichoeres* (*cyanocephalus, maculipinna, garnoti* [NE]) 770–782; *Echidna catenata, Gymnothorax* sp. F, *Hoplunnis* sp. D, Myrophinae sp. A, Ophichthini sp. 8, Ophichthini sp. 9 (leptocephali only) (W) 886–892.
Chile, *Liolaemus puna* n. sp. 850–866.
China, *Phrynocephalus* (*versicolor, przewalskii, frontalis* = *przewalskii*, sp.) 199–206.
Cocos Isls., *Scorpaena cocosensis* n. sp. 818–824.
Colombia, *Steatogenys duidae* 78–91; *Gobionellus* (*dagguae, microdon, oceanicus*) 281–297; *Podocnemis expansa* 735–742; *Stenocercus erythrogaster* 937–941.
Colorado, *Rhinichthys osculus* 207–221.
Congo (Republic of the), *Channallabes apus* 108–115; *Gobionellus occidentalis* 281–297.
Costa Rica, *Gobionellus* (*liolepis, microdon, oceanicus*) 281–297; *Scorpaena cocosensis* n. sp. (Cocos Isls.) 818–824.
Delaware, *Gobionellus oceanicus* 281–297.
Democratic Republic of the Congo, *Dolichallabes microphthalamus, Channallabes apus* 108–115.
Dominica, *Leptodactylus fallax* 128–135.
Ecuador, *Gobionellus microdon* 281–297; *Physalaemus petersi* 624–631.
El Salvador, *Gobionellus* (*liolepis, microdon*) 281–297.
Equatorial Guinea, *Gobionellus occidentalis* 281–297.
Florida, *Pseudobranchus* (*axanthus, striatus*) 136–144; *Gambusia holbrooki, Hyla squirella, Gastrophryne carolinensis* 173–177; *Gobionellus oceanicus* 281–297; *Esox a. americanus* 743–757; *Halichoeres* (*cyanocephalus, maculipinna*) (Keys) 770–782.
France, *Esox lucius* 743–757.
French Guiana, *Gobionellus oceanicus* 281–297.
French Polynesia, *Encheliophis chardewalli* n. sp. (Moorea) 62–67.
Gabon, *Gobionellus occidentalis* 281–297.
Gambia, *Gobionellus occidentalis* 281–297.
Georgia (USA), *Pseudobranchus striatus* 136–144; *Gobionellus oceanicus* 281–297; *Plethodon* (*petraeus, glutinosus*) 488–495.
Germany, Carettochelyine turtle (fossil) 406–411; *Esox lucius* 743–757.
Ghana, *Gobionellus occidentalis* 281–297.
Guatemala, *Gobionellus* (*microdon, oceanicus*) 281–297.
Guinea, *Gobionellus occidentalis* 281–297.
Guinea Bissau, *Gobionellus occidentalis* 281–297.
Gulf of California, *Scorpaena sonorae* 818–824.
Guyana, *Steatogenys elegans* 78–91; *Gobionellus oceanicus* 281–297.
Hawaii, *Oneirodes pietschi* n. sp. 74–77.
Honduras, *Gobionellus oceanicus* 281–297.
Idaho, *Rhinichthys osculus* 207–221; *Cottus* (*beldingi, bairdi*), *Salmo trutta* 617–623.
Illinois, *Rana clamitans* 159–164; *Thamnophis radix* 465–478; *Esox* (*americanus vermiculatus, lucius*) 743–757.
India, *Chanda nama* 900–904.
Indian Ocean, *Bufoceratias shaoi* n. sp. (W) 98–107; *Phyllorhinichthys micractis* (W) 797–803.
Indiana, *Fundulus* (*Xenisma*) (*catenatus*) 53–61; *Erimystax* (*dissimilis, x-punctatus*) 351–356.
Indonesia, *Wallago leerii* (Borneo, Sumatra) 92–97; *Pterapogon kauderni* (Banggai Archipelago) 364–369; *Mystus wolffii* (Sumatra, Java, Borneo) 881–885.
Ireland, *Phyllorhinichthys balushikini* n. sp. 797–803.
Italy, *Bufo viridis* 659–664.
Ivory Coast, *Gobionellus occidentalis* 281–297.
Japan, *Oneirodes pietschi* n. sp. 74–77; *Phyllorhinichthys micractis* 797–803.
Java, *Mystus wolffii* 881–885.
Kentucky, *Erimystax dissimilis* 351–356; *Etheostoma*

(*Allohistium*) *cinereum* 632–637; *Etheostoma crossopterum* 912–915.
Laos, *Wallago micropogon* n. sp. 92–97; *Microhyla marmorata* n. sp. 507–524.
Liberia, *Gobionellus occidentalis* 281–297.
Louisiana, *Gobionellus oceanicus* 281–297.
Malaysia, *Wallago* (*maculatus* [Sabah], *leerii* [Malay Pen.]) 92–97; *Mystus armiger* n. sp. (Malay Pen.) 881–885.
Mariana Isls., *Pietschichthys horridus* = *Dermatias platynogaster* 122–127.
Maryland, *Gobionellus oceanicus* 281–297.
Massachusetts, *Ambystoma maculatum* 152–158; *Esox* (*a. americanus, niger*) 743–757.
Mexico, *Gobionellus* (*microdon* [entire W coast], *oceanicus* [entire E coast]) 281–297; *Hyla* (*wrightorum* [Son.], *eximia* [D.F.]) 758–769; *Phyllorhinichthys micractis* (Guadalupe Is.) 797–803; *Scorpaena sonorae* (Baja Cal., Son.) 818–824; *Notropis calabazas* n. sp. (*N. calientis* sp. group) (San Luis Pot.) 867–874.
Michigan, *Esox masquinongy* 743–757.
Mid-Atlantic Ridge, *Pachycara* (*saldanhai* n. sp. [Azores segment], *thermophilum* [central N. Atl. segment]) 562–568.
Minnesota, *Erimystax x-punctatus* 351–356; *Rana pipiens* 676–682; *Esox masquinongy* 743–757.
Mississippi, *Fundulus* (*Xenisma*) (*catenatus*) 53–61; *Gobionellus oceanicus* 281–297; *Micropterus punctulatus* 592–598; *Oreochromis niloticus* 842–849.
Missouri, *Fundulus* (*Xenisma*) (*catenatus*) 53–61; *Erimystax* (*harryi, x-punctatus*) 351–356; *Rana* (*catesbeiana, sphenocephala*), *Bufo americanus, Ambystoma maculatum* 683–690.
Montserrat, *Leptodactylus fallax* 128–135.
Moorea (French Polynesia), *Encheliophis chardewalli* n. sp. 62–67.
Mozambique Channel, *Bufoceratias shaoi* n. sp. 98–107.
Nevada, *Rhinichthys osculus* 207–221.
New Britain, *Platymantis* (*mamusiorum* n. sp., *macrosceles*) 825–841.
New Caledonia, *Encheliophis vermicularis* 62–67.
New Jersey, *Gobionellus oceanicus* 281–297.
New Mexico, *Phrynosoma cornutum* 652–658.
New Zealand, *Oligosoma suteri* 383–390.
Nicaragua, *Gobionellus* (*liolepis, microdon, oceanicus*) 281–297.
Nigeria, *Gymnallabes typus* 108–115; *Gobionellus occidentalis* 281–297.
North Carolina, *Fundulus* (*Xenisma*) (*rathbuni*) 53–61; *Gobionellus oceanicus* 281–297; *Erimystax insignis* 351–356; *Rana sylvatica, Ambystoma maculatum* 929–936.
Ohio, *Erimystax* (*dissimilis, x-punctatus*) 351–356.
Oregon, *Rana* (*catesbeiana, aurora aurora, pertiosa*) 11–20; *Rhinichthys* (*osculus, falcatus*) 207–221.
Pacific Ocean, *Oneirodes pietschi* n. sp. (N) 74–77; *Bufoceratias* (*shaoi* n. sp. [Indo.-W], *thele* [W]) 98–107; *Pietschichthys horridus* = *Dermatias platynogaster* (NW) 122–127; *Gobionellus* (*liolepis, microdon*) (E) 281–297; *Bathyraja mariposa* n. sp. (far N) 305–314; *Phyllorhinichthys micractis* (N & Cent.) 797–803; *Scorpaena* (*cocosensis* n. sp., *russula, sonorae*) (E) 818–824.
Panama, *Gobionellus* (*daguae, liolepis, microdon, oceanicus*) 281–297.
Papua New Guinea, *Platymantis* (*mamusiorum* n. sp., *macrosceles*) (New Britain) 825–841.
Pennsylvania, *Esox niger* 743–757.
Peru, *Drymoluber apurimacensis* n. sp. 46–52; *Steatogenys ocellatus* n. sp. 78–91; *Gymnotus coatesi* 525–533; *Physalaemus petersi* 624–631; *Liolaemus alticolor* 850–866.
Philippines, *Pietschichthys horridus* = *Dermatias platynogaster* 122–127; *Caelorinchus macrorhynchus* 298–304.
Russia, *Esox* (*lucius, reicherti*) 743–757.
St. Croix, *Halichoeres* (*cyanocephalus, maculipinna*) 770–782.
Senegal, *Gobionellus occidentalis* 281–297.
Sierra Leone, *Gobionellus occidentalis* 281–297.
Somalia, *Phyllorhinichthys micractis* 797–803.
South Carolina, *Aphredoderus sayanus* 1–10; *Crotalus adamanteus* 145–151; *Gobionellus oceanicus* 281–297; *Clemmys guttata* 804–817.
Spain, *Mauremys caspica* 178–183; *Podarcis muralis* 691–696.
Sumatra, *Wallago leerii* 92–97; *Mystus wolffii* 881–885.
Suriname, *Gobionellus oceanicus* 281–297.
Switzerland, *Rana* (*lessonae* [parental sp.], *esculenta* [hybridogenic sp.]) 638–646.
Taiwan, *Oneirodes pietschi* n. sp. 74–77; *Bufoceratias shaoi* n. sp. 98–107; *Caelorinchus* (*leptorhinus* n. sp., *brevirostris*) 298–304.
Tennessee, *Fundulus* (*Xenisma*) (*catenatus, julisia, stellifer*) 53–61; *Hyla chrysoscelis* 344–350; *Erimystax* (*dissimilis, insignis, cahni*) 351–356; *Etheostoma* (*Doration*) sp. 412–417; *Etheostoma* (*Allohistium*) *cinereum* 632–637.
Texas, *Gobionellus oceanicus* 281–297; *Tantilla gracilis* 397–402.
Thailand, *Wallago micropogon* n. sp. 92–97.
Togo, *Gobionellus occidentalis* 281–297.
U.S. Virgin Islands, *Halichoeres* (*cyanocephalus, maculipinna*) (St. Croix) 770–782.
Utah, *Rhinichthys osculus* 207–221.
Venezuela, *Steatogenys* (*elegans, duidae*) 78–91; *Atelopus* (*cruciger, vogli*) 222–234; *Gobionellus oceanicus* 281–297; *Callichthys serralabium* n. sp. 336–343; *Rana palmipes, Ancistrus triradiatus* 610–616; *Halichoeres maculipinna* 770–782; *Stenocercus erythrogaster* 937–941.
Vietnam, *Wallago micropogon* n. sp. 92–97; *Microhyla* (*marmorata* n. sp., *pulverata* n. sp., *nanapollexa* n. sp.) 507–524.
Virginia, *Plethodon cinereus* 28–36, 165–172; *Opsanus tau* 235–244; *Gobionellus oceanicus* 281–297; *Erimystax x-punctatus* 351–356.
Washington, *Rhinichthys osculus* 207–221; *Oncorhynchus mykiss* 378–382.
Wyoming, *Rhinichthys osculus* 207–221; *Cottus* (*beldingi, bairdi*), *Salmo trutta* 617–623.
GROWTH, *Oryzias latipes* (temp. affs. life hist. traits indepndtly. of eff. on growth) 37–45; *Oligosoma suteri* (reduced by low incub. temps.) 383–390; *Thamnophis radix* (gender-rel. rates) 465–478;

Rana palmipes, Ancistrus triradiatus (rel. btwn. benthic feeding of tdpls. & growth in algiv. catfish, field exp.) 610–616.

HABITAT, *Rana* (*catesbeiana, aurora aurora, pertiosa*) (microhab. diffs. rel. to diff. pred. on native frogs by introd. *R. catesbeiana*) 11–20; *Drymoluber apurimacensis* n. sp. (altit., veg. type, sympat. snakes, stom conts. of 1 individ.) 46–52; *Moenkhausia bonita* n. sp. (notes) 68–73; *Oneirodes pietschi* n. sp. (water depth)74–77; *Steatogenys ocellatus* n. sp. (notes) 78–91; *Bufoceratias* (*shaoi* n. sp., *wedli, thele*) (depth of captures) 98–107; *Gambusia holbrooki, Hyla squirella, Gastrophryne carolinensis* (tdpls. not protected from small fish pred. by hab. complex.) 173–177; *Atelopus* (*cruciger, vogli*) (notes) 222–234; *Sternopygus branco* n. sp. (notes) 245–259; *Gobionellus* (all 6 spp.) (notes) 281–297; *Caelorinchus* (*leptorhinus* n. sp., *macrorhynchus, brevirostris*) (depth) 298–304; *Pimelodella spelaea* n. sp. (cave hab., physico-chem. charcs.) 315–325; *Pterapogon kauderni* (unusual ontogen. shift in hab.) 364–369; *Varanus panoptes* (beach & dune, seas. diffs., prey on sea turtle eggs) 370–377; *Etheostoma* (*Doration*) sp. (hab. & microhab. diffs. for spawning in endngrd. sp.) 412–417; *Plethodon* (*petraeus, glutinosus*) (microhab. diffs. in sympatric spp. possibly aff. by aggress. interference) 488–495; *Henochilus wheatlandii* (notes) 496–506; *Microhyla* (*marmorata* n. sp., *pulverata* n. sp., *nanapollexa* n. sp.) (notes) 507–524; *Gymnotus coatesi* (seas. diffs., flooded forest) 525–533; *Hyla* (*feioi* n. sp. (notes, adult & tdpl. hab.) 534–545; *Lopholiparis* n. gen. *flerxi* n. sp. (notes) 551–555; *Pachycara* (*saldanhai* n. sp., *thermophilum*) (depth) 562–568; *Rivulus duckensis* n. sp. (notes) 569–576; *Knodus geryi* n. sp. (notes) 577–582; *Clemmys guttata* (annual, seas. & gender diffs. in hab. use) 804–817; *Platymantis* (*mamusiorum* n. sp., *macrosceles*) (hab. & microhab., syntopic anurans) 825–841; *Liolaemus* (*chaltin* n. sp., *puna* n. sp., *alticolor*) (descript., altitude) 850–866; *Notropis calabazas* n. sp. (*N. calientis* sp. group) (descript., syntopic fishes) 867–874; *Trichomycterus pseudosilvinichthys* n. sp. (notes) 875–880; *Spicospina flammocaerulea* (describe breeding hab., syntopic anurans) 893–899; *Stenocercus erythrogaster* (descript.) 937–941.

HISTOLOGY, *Mauremys caspica* (seas. & gender var. in lymphocyte # & distrib. in body) 178–183.

HOME RANGE, *Clemmys guttata* (home range size & overlap, seas. mvmnts.) 804–817.

HYBRIDIZATION, *Oncorhynchus* (*gilae apache, mykiss*) (diff. dev. rates of reciprocal crosses) 378–382; *Rana* (*lessonae* [parental sp.], *esculenta* [hybridogenic sp.]) (larv. dev. & metamorph. surv. in persistance of popns. of hybrids & parentals) 638–646; *Esox* (all 6 spp.) (morph.- & genetic-based phyl. anal. suggests hybrid. btwn. pickerel spp.) 743–757; *Ambystoma* (*tigrinum stebbinsi, t. mavortium*) (evid. of introgress. from introd. *A. t. mavortium* into endngrd. *A. t. stebbins*) 783–796.

IMMUNITY, *Mauremys caspica* (seas. & gender var. in lymphocyte # & distrib. in body) 178–183; *Cyprinella venusta, Pimephales vigilax, Gambusia affinis, Fundulus olivaceus* (possible funct. of club cells) 592–598.

LARVAE, *Leuresthes tenuis* (mvmnts. during rapid htchg. in grunion) 21–27; *Leptodactylus fallax* (matern. care incl. oblig. oophagy, dev. thru metamorph.) 128–135; *Gambusia holbrooki, Hyla squirella, Gastrophryne carolinensis* (tdpls. not protected from small fish pred. by hab. complex.) 173–177; *Hyla chrysoscelis* (chytrid infection interacts w/ environ. copper in larvae) 344–350; *Xiphias gladius* (ontog. of squamation, starts in larvae) 391–396; *Hyla feioi* n. sp. (descript., hab., nocturnal) 534–545; *Rana temporaria* (model resembling this sp.) (tail spots protect tdpls. from dragonfly larv. pred.) 599–602; *Rana palmipes, Ancistrus triradiatus* (rel. btwn. benthic feeding of tdpls. & growth in algiv. catfish, field exp.) 610–616; *Rana* (*lessonae* [parental sp.], *esculenta* [hybridogenic sp.]) (diffs. in devel. & metamorph surv. betwn. spp.) 638–646; *Rana* (*catesbeiana, sphenocephala*), *Bufo americanus, Ambystoma maculatum* (bullfrog tdpls. eff. on sympatric amphib. larvae) 683–690; *Spicospina flammocaerulea* (describe eggs, embryos & tdpls. of rare frog) 893–899; *Rana sylvatica, Ambystoma maculatum* (variable bottom up & top down ecol. effs. of *R. sylvatica* tdpls. on *A. maculatum* larvae) 929–936.

LATERAL LINE, *Moenkhausia bonita* n. sp. (completeness as generic distinct. btwn. *M.* & *Hemigrammus* questioned) 68–73; *Gobionellus, Ctenogobius, Oxyurichthys, Evorthodus, Gobioides, Oligolepis, Stenogobius* (in phyl. anal. of *Gobionellus* & rels. w/ other gobionellines) 260–280; *Gobionellus* (all 6 spp.) (in diagn. of genus) 281–297.

LIFE HISTORY, *Oryzias latipes* (temp. affs. life hist. traits indepndtly. of eff. on growth) 37–45; *Thamnophis radix* (popn. size, dens., age- & gender-rel. surv., growth rates & fertil. rates) 465–478; *Bufo viridis* (investigate trade-offs btwn. reprod. & somatic imvestment) 659–664.

LIGHT, *Hypomesus* (*transpacificus, nipponensis*), *Pogonichthys macrolepidotus, Onchorhynchus tshawytscha, Menidia beryllina* (swimming beh. under diff. light condits.) 479–487.

LOCOMOTION, *Rana* (*catesbeiana, aurora aurora, pertiosa*) (diff. jump dist. of native frogs rel. to pred. by introduced *R. catesbeiana*) 11–20; *Leuresthes tenuis* (mvmnts. during rapid htchg. in grunion) 21–27; *Acanthophis praelongus* (physiol. chngs.w/ pregnancy aff. swimming speed) 357–363; *Hypomesus* (*transpacificus, nipponensis*), *Pogonichthys macrolepidotus, Onchorhynchus tshawytscha, Menidia beryllina* (swimming beh. under diff. light condits.) 479–487.

METHODS, Osteichthyans (prepare skeletons w/ Ridewood dissections as museum specimens) 603–609; *Diaphus* (slender-type spp.) (shrinkage in body length in larvae w/ various preservatives) 647–651; *Chrysemys picta, Podocnemis expansa* (effective cheap method for ident. turtle htchlng. gender in the field) 735–742.

MICROSATELLITE DNA, *Ambystoma tigrinum stebbinsi* (9 loci, evid. for distinctivenesss of endngrd. subsp.) 783–796; *Sebastes* (*carnatus, chrysomelas*) (in assessing genet. diverg. btwn. color morphs) 923–928.

MITOCHONDRIAL DNA, *Phrynocephalus* (*versicolor, przewalskii, frontalis* = *przewalskii*, sp.) (in revision of spp. designations) 199–206; *Rhinichthys* (*osculus, falcatus*) (derive molec. phyl., compare to histor. hydrography) 207–221; *Erimystax* (all 5 spp.) (in phyl. anal. of genus) 351–356; Esociformes (the 4 genera & some salmonids, other procanthopterigians & neotelosts) (in clad. anal., nuclear DNA included) 449–464; *Henochilus wheatlandii* (in clad. anal. of genus in family) 496–506; *Rivulus duckensis* n. sp. (in clad. anal., sister taxa determ.) 569–576; *Etheostoma* (*Allohistium*) *cinereum* (in clad. anal. of disjunct popns., agrees w/ morph. data) 632–637; *Esox* (all 6 spp.) (in clad. anal., compare to nuclear DNA- & morph.-based clad. anal.) 743–757; *Hyla* (*wrightorum, eximia*) (in clad. anal.) 758–769; *Halichoeres* (*cyanocephalus, maculipinna, garnoti, dimidiatus, penrosei*) (gen. divers. compare w/ color pttn. divers.) 770–782; *Ambystoma* (*tigrinum stebbinsi, t. mavortium*) (evid. of introgress. from introd. *A. t. mavortium* into endngrd. *A. t. stebbins*) 783–796.

MORPHOLOGY, *Aphredoderus sayanus* (rel. to unique spawning beh.) 1–10; *Fundulus* (*Xenisma*) (6 spp.) (phyl. anal. using 21 morph. charcs.) 53–61; *Oneirodes pietschi* n. sp. (escal morph. disting. n. sp.) 74–77; *Rivulus duckensis* n. sp. (miniaturization) 569–576; *Physalaemus petersi* (larynx morph. rel. to complex. of calls) 624–631; *Hyla* (*wrightorum, eximia*) (in descript. of geogr. var.) 758–769; *Chanda nama* (jaw morph. adapted to scale feeding) 900–904.

NESTING, *Plethodon cinereus* (trade-offs btwn. current & future reprod., incl. brood abandonment) 28–36; *Leptodactylus fallax* (foam nests, both parents defend, matern. care incl. oblig. oophagy) 128–135; *Etheostoma crossopterum* (males defend nests against pred.) 912–915.

NOMENCLATURE, *Eustomias* (*Neostomias*) (*monodactylus, filifer*) (resurrect *E. monodactylus* from *E. filifer*) 116–121; *Pietschichthys horridus* = *Dermatias platynogaster* (synon. of spp.) 122–127; *Gobionellus* (all 6 spp.) (synon. *G. mystax* into *G. microdon* & *G. hastatus* into *G. oceanicus*, designate neotype for *G. oceanicus*, designate lectotype for *G. microdon*) 281–297; *Neoetropus macrops* = *Citharichthys arctifrons* (*N. macrops* is reversed individual of *C. arctifrons*, locality of specimen is suspect) 583–591; *Heptapterus collettii* = *Olyra collettii* (locality mistake led to original generic misident.) 665–675; *Halichoeres* (*dimidiatus, penrosei*) (designate neotype) 770–782.

NONINDIGENOUS SPECIES, *Rana* (*catesbeiana, aurora aurora, pretiosa*) (introd. *R. catesbeiana* differential pred. on native frogs) 11–20; *Oncorhynchus* (*gilae apache, mykiss*) (hybrid. btwn. native & introd. spp., diff. dev. rates of reciprocal crosses) 378–382; *Cottus* (*beldingi, bairdi*), *Salmo trutta* (diff. in ecol. charcs. of streams, incl. presence of introd. *S. trutta*, import. in mngmnt. of rare *C. beldingi*) 617–623; *Rana* (*catesbeiana, sphenocephalus*), *Bufo americanus, Ambystoma maculatum* (bullfrog tdpls. spread to new habs. in disturbed areas aff. sympatric amphib. larvae) 683–690; *Ambystoma* (*tigrinum stebbinsi, t. mavortium*) (evid. of introgress. from introd. *A. t. mavortium* into endngrd. *A. t. stebbins*) 783–796; *Oreochromis niloticus* (reprod. charcs. may give comptet. advntg. over native fishes) 842–849.

NUCLEAR DNA, Esociformes (the 4 genera & some salmonids, other procanthopterigians & neotelosts) (in clad. anal., mtDNA included) 449–464; *Esox* (all 6 spp.) (in clad. anal., compare to mDNA- & morph.-based clad. anal.) 743–757.

OLFACTION, *Podarcis muralis* (lizards respond diff. to chem. cues of saurophagous & non-saurophagous snakes) 691–696.

OSTEOLOGY, *Fundulus* (*Xenisma*) (6 spp.) (phyl. anal. using osteol. & ext. morph. charcs.) 53–61; *Encheliophis* (*chardewalli* n. sp., *vermicularis*) (osteol. charcs. in spp. descript. & redescript., paedomorphy in n. sp.) 62–67; *Dolichallabes microphthalamus, Channallabes apus, Gymnallabes typus* (discuss osteol, incl. other Clariids) 108–115; *Atelopus* (*cruciger, vogli*) (compare & redescribe spp.) 222–234; *Sternopygus branco* n. sp. (descript.) 245–259; *Gobionellus, Ctenogobius, Oxyurichthys, Evorthodus, Gobioides, Oligolepis, Stenogobius* (in phyl. anal. of *Gobionellus* & rels. w/ other gobionellines) 260–280; *Gobionellus* (all 6 spp.) (in diagn. of genus) 281–297; *Bathyraja cousseauae* n. sp. (disting. n. sp.) 326–335; *Gymnotus coatesi* (describe) 525–533.

PAEDOMORPHISM, *Encheliophis* (*chardewalli* n. sp., *vermicularis*) (n. sp. paedomorphic) 62–67; *Dolichallabes microphthalamus* (paedo. Clariid catfish) 108–115; *Pseudobranchus axanthus* (reduced gen. var. in paedomorph) 136–144.

PALEONTOLOGY, Carettochelyine turtle (fossil) (middle Miocene in Germany) 406–411.

PARASITES, *Microhyla* (*marmorata* n. sp.) (notes on intestinal parasites) 507–524.

PATHOGENS, *Hyla chrysoscelis* (chytrid infection interacts w/ environ. copper in larvae) 344–350.

PHYLOGENETIC ANALYSIS, *Fundulus* (*Xenisma*) (6 spp.) (clad. anal., subgenus monophyly, osteol. & ext. morph. charcs.) 53–61; *Phrynocephalus* (*versicolor, przewalskii, frontalis* = *przewalskii*, sp.) (clad. anal., vicariance in spp. complex) 199–206; *Rhinichthys* (*osculus, falcatus*) (clad. anal., mtDNA data, rel. to histor. hydrography) 207–221; *Gobionellus, Ctenogobius, Oxyurichthys, Evorthodus, Gobioides, Oligolepis, Stenogobius* (clad.. anal. of *Gobionellus*, osteol. & lat. line charcs., genus is polyphyletic, resurrect *Ctenogobius* for 15 spp., one sp. removed to *Oxyurichthys*, discuss synaps. of 4 other gobionelline genera) 260–280; *Callichthys serralabium* n. sp. (some charcs. incongruent w/ phyl. hypoth. for family) 336–343; *Erimystax* (all 5 spp.) (clad. anal. of genus, mtDNA data, biogeogr. hy-

poths, diff. result from morph. data) 351–356; Esociformes (the 4 genera & some salmonids, other procanthopterigians & neotelosts) (clad. anal., mDNA & nuclear DNA data, sister groups, compare to previous analyses, some hypoths. on Stomiiformes & Osmeriformes) 449–464; *Henochilus wheatlandii* (clad. anal. of genus puts it in clade w/ *Brycon*, mtDNA data) 496–506; *Rivulus duckensis* n. sp. (clad. anal., mtDNA data, sister taxa determ.) 569–576; *Etheostoma* (*Allohistium*) *cinereum* (clad. anal. of 3 disjunct popns., genet. diffs., may be diff. spp., mtDNA data, agrees w/ morph. data) 632–637; *Hyla* (*wrightorum, eximia*) (clad. anal., mtDNA data) 758–769.

PHYSIOLOGY, *Crotalus adamanteus* (eff. of body size & temp. on met. rate) 145–151; *Opsanus tau* (androgen seas. var. rel. to male & female gonad dev. & male "boatwhistle" calls) 235–244; *Acanthophis praelongus* (physiol. chngs. w/ pregnancy aff. swimming speed) 357–363.

POPULATIONS, *Pimelodella spelaea* n. sp. (cave fish, high popn. dens., popn. charcs., change w/ dry seas. progression) 315–325; *Thamnophis radix* (popn. size, dens., age- & gender-rel. surv., growth rates & fertil. rates) 465–478.

POSTCLOACAL GLAND, *Plethodon cinereus* (in territ. marking in tailed & tailless residents & eff. on intruders) 165–172.

PREDATION, *Rana* (*catesbeiana, aurora aurora, pretiosa*) (jump dist. & microhab. diffs. of native frogs predict eff. of introd. predator) 11–20; *Gambusia holbrooki, Hyla squirella, Gastrophryne carolinensis* (tdpls. not protected from small fish pred. by hab. complex.) 173–177; *Varanus panoptes* (prey on sea turtle eggs, other prey) 370–377; *Tantilla gracilis* (prey shape chngs. w/ ontog.) 397–402; *Mycteroperca acutirostris* (feigning dying as predation tactic) 403–405; *Micropterus punctulatus* (no evid. of pred. attraction to skin extracts of prey) 592–598; *Rana temporaria* (model resembling this sp.) (tail spots protect tdpls. from dragonfly larv. pred.) 599–602; *Cottus* (*beldingi, bairdi*), *Salmo trutta* (local distrib. of sculpins aff. by dens. of introd. trout) 617–623; *Phrynosoma cornutum* (blood squirting effective antipred. beh. against kit foxes) 652–658; *Podarcis muralis* (lizards respond diff. to chem. cues of saurophagous & non-saurophagous snakes) 691–696; *Etheostoma crossopterum* (males defend nests against pred.) 912–915; *Rana sylvatica, Ambystoma maculatum* (pred. & compet. of *R. sylvatica* tdpls. on *A. maculatum* larvae under diff. condits.) 929–936.

REPRODUCTION, *Aphredoderus sayanus* (unique spawning beh.) 1–10; *Leuresthes tenuis* (rapid htchg. events in grunion) 21–27; *Plethodon cinereus* (trade-offs btwn. current & future reprod.) 28–36, (territor. beh. aff. by tail autotomy in both residents & intruders) 165–172; *Oryzias latipes* (temp. affs. age at reprod. matur. indepndtly. of eff. on growth) 37–45; *Leptodactylus fallax* (intense matern. care incl. oblig. oophagy, both parents defend nest) 128–135; *Rana clamitans* (male territor. increases in breeding season) 159–164; *Atelopus* (*cruciger, vogli*) (notes) 222–234; *Opsanus tau* (prolonged repro. seas., androgen seas. var. rel. to male & female gonad dev. & male "boatwhistle" calls) 235–244; *Acanthophis praelongus* (physiol. chngs. w/ pregnancy aff. swimming speed) 357–363; *Oncorhynchus* (*gilae apache, mykiss*) (diff. dev. rates of reciprocal crosses) 378–382; *Etheostoma (Doration)* sp. (spawning beh. & microhab. diffs. btwn. spawning & non-spawning in endngrd. sp.) 412–417; *Thamnophis radix* (age-rel. fertil. rates) 465–478; *Microhyla* (*marmorata* n. sp., *pulverata* n. sp., *nanapollexa* n. sp.) (notes on eggs & seas.) 507–524; *Bufo viridis* (interrels. btwn. clutch size & egg size, matern. body size & matern. condit.) 659–664; *Oreochromis niloticus* (reprod. charcs. may give comptet. advntg. over native fishes) 842–849; *Liolaemus* (*chaltin* n. sp., *puna* n. sp.) (*L. chaltin* n. sp. is oviparous, *L. puna* n. sp. is vivparous) 850–866; *Spicospina flammocaerulea* (amplexus, ovipos., describe eggs, embryos & tdpls.) 893–899; *Etheostoma crossopterum* (males defend nests against pred.) 912–915.

RESPIRATION, *Crotalus adamanteus* (ox. consump. as measure of met. rate, eff. of body size & temp.) 145–151.

SCHRECKSTOFF, *Micropterus punctulatus* (no evid. of pred. attraction to skin extracts of prey) 592–598.

SEX RATIO, *Chrysemys picta, Podocnemis expansa* (effective cheap method for ident. turtle htchlng. gender in the field) 735–742.

SEXUAL DIMORPHISM, *Moenkhausia bonita* n. sp. (in pelvic fin length) 68–73; *Opsanus tau* (in swim bladder & sonic muscles, androgen seas. var. not correl. w/ "boatwhistle" call var.) 235–244; *Thamnophis radix* (male-female growth rate diffs.) 465–478; *Hyla* (*feioi* n. sp., *ahenea* n. sp.) (hypertrophied forearms in males) 534–545; *Rivulus duckensis* n. sp. (unusually little for genus) 569–576; *Chrysemys picta, Podocnemis expansa* (subtle htchlng. sex. shape dimorph. detected using effective cheap morphometric geometric method) 735–742.

SIZE, *Oryzias latipes* (at matur. variably aff. by temp.) 37–45; *Crotalus adamanteus* (eff. of body size & temp. on met. rate) 145–151; *Oligosoma suteri* (reduced by low incub. temps.) 383–390; *Tantilla gracilis* (prey size rel. to body size) 397–402; *Bufo viridis* (interrels. btwn. clutch size & egg size, matern. body size & matern. condit.) 659–664; *Oreochromis niloticus* (size-fecund. rels.) 842–849.

SOUND, *Opsanus tau* (male "boatwhistle" calls, duration & freq. var., rel. to androgen levels & gonad dev.) 235–244.

SURVIVAL, *Oligosoma suteri* (reduced by low incub. temps.) 383–390; *Thamnophis radix* (age- & gender-rel. surv.) 465–478.

SYSTEMATICS, *Drymoluber apurimacensis* n. sp. (n. sp., alter generic descript., compare to congeners) 46–52; *Fundulus* (*Xenisma*) (6 spp.) (phyl. anal., subgenus monophyly, osteol. & ext. morph. charcs.) 53–61; *Encheliophis* (*chardewalli* n. sp., *vermicularis*) (n. sp. paedomorphic, compare to similar non-paedo. congener) 62–67; *Moenkhausia*

bonita n. sp. (n. sp., compare to congeners, phyl. notes, ecol. notes, lat. line completeness as generic distinct. btwn. *M.* & *Hemigrammus* questioned) 68–73; *Oneirodes pietschi* n. sp. (n. sp., *O. schmidti* spp. group, lacks anter. escal appendage) 74–77; *Steatogenys* (*ocellatus* n. sp., *elegans, duidae*) (n. sp., compare to congeners, elect. organ dischrg., ecol. notes, n. sp. often syntopic w/ *S. elegans*) 78–91; *Wallago* (*micropogon* n. sp., *maculatus, leerii*) (n. sp., *W. leerii* clade phyl. notes & biogeogr. notes) 92–97; *Bufoceratias* (*shaoi* n. sp., *wedli, thele*) (n. sp., revise genus, redescribe *B. wedli* & *B. thele*, key to spp., hab. notes) 98–107; *Dolichallabes microphthalamus, Channallabes apus, Gymnallabes typus* (redescribe *D. microphthalmus*, compare to others, mainly osteol. charcs.) 108–115; *Eustomias* (*Neostomias*) (*jimcraddocki* n. sp., *monodactylus, filifer, tetranema*) (n. sp., resurrect *E. monodactylus*, review subgenus w/ key to spp.) 116–121; *Pietschichthys horridus* = *Dermatias platynogaster* (synon. spp., redescribe genus & sp., revised key to genera of Oneirodidae) 122–127; *Pseudobranchus* (*axanthus, striatus*) (confirm spp., allozyme data, paedomorph *P. axanthus* less gen. var. than *P. striatus*) 136–144; *Phrynocephalus* (*versicolor, przewalskii, frontalis* = *przewalskii*, sp.) (phyl. anal., revise spp. designations, mtDNA data) 199–206; *Rhinichthys* (*osculus, falcatus*) (phyl. anal, *R. osculus* paraphyl, one popn. *R. falcatus* w/in *R. osculus*, mtDNA data) 207–221; *Atelopus* (*cruciger, vogli*) (redescripts., propose new category "cricitally endngrd.") 222–234; *Sternopygus branco* n. sp. (n. sp., compare to 6 of the 7 congeners) 245–259; *Gobionellus, Ctenogobius, Oxyurichthys, Evorthodus, Gobioides, Oligolepis, Stenogobius* (phyl. anal. of *Gobionellus*, osteol. & lat. line charcs., genus is polyphyletic, resurrect *Ctenogobius* for 15 spp., one sp. removed to *Oxyurichthys*, discuss synaps. of 4 other gobionelline genera) 260–280; *Gobionellus* (all 6 spp.) (redescribe genus & spp., osteol. & lat. line charcs, key to spp., synon. *G. mystax* into *G. microdon* & *G. hastatus* into *G. oceanicus*) 281–297; *Caelorinchus* (*leptorhinus* n. sp., *macrorhynchus, brevirostris*) (n. sp., compare to closely-rel. *C. macrorhynchus*, redescribe *C. brevirostris*) 298–304; *Bathyraja mariposa* n. sp. (n. sp., compare to congeners & other Alaskan rajids) 305–314; *Pimelodella spelaea* n. sp. (n. sp. of cave fish, compare to non-cave rels. & cave congener *P. kronei*) 315–325; *Bathyraja cousseauae* n. sp. (n. sp., compare to SW Atlantic congeners) 326–335; *Callichthys serralabium* n. sp. (n. sp., some charcs. incongruent w/ phyl. hypoth. for family, compare to congeners, key to spp. of genus) 336–343; *Erimystax* (all 5 spp.) (phyl. anal. of genus, mtDNA data, biogeogr. hypoths., diff. result from morph. data) 351–356; Esociformes (the 4 genera & some salmonids, other procanthopterigians & neotelosts) (phyl. anal., mDNA & nuclear DNA data, sister groups, compare to previous analyses, some hypoths. on Stomiiformes & Osmeriformes) 449–464; *Henochilus wheatlandii* (redescribe genus & sp. w/ new specimens, phyl. anal. of genus in family, mtDNA data) 496–506; *Microhyla* (*marmorata* n. sp., *pulverata* n. sp., *nanapollexa* n. sp., *annamensis, palmipes*) (n. sp. compared to similar congeners) 507–524; *Gymnotus coatesi* (redescribe sp. incl. many specimens from new location & reindent. of other specimens) 525–533; *Hyla* (*feioi* n. sp., *ahenea* n. sp., *ibitipoca*) (n. spp., calls of syntopic *H. feioi* n. sp. & *H. ibitipoca*) 534–545; *Scorpaenopsis insperatus* n. sp. (n. sp., compared to all congeners, only temperate *Scorpaenopsis* in Australia) 546–550; *Lopholiparis* n. gen. *flerxi* n. sp. (n. gen. & n. sp., most similar to *Temnocora candida*) 551–555; *Icelinus limbaughi* n. sp. (n. sp., compared to all congeners) 556–561; *Pachycara* (*saldanhai* n. sp., *thermophilum*) (n. sp. of hydrothermal vent endemic compared to only congeneric vent endemic) 562–568; *Rivulus duckensis* n. sp. (n. sp., phyl. anal., compare to Central Amazonian congeners, mtDNA data) 569–576; *Knodus geryi* n. sp. (n. sp., tail blotches unique in Characidae, discuss problems w/ current taxon. of *Knodus* & related genera) 577–582; *Etheostoma* (*Allohistium*) *cinereum* (phyl. anal. of 3 disjunct popns., genet. diffs., may be diff. spp., mtDNA data, agrees w/ morph. data) 632–637; *Heptapterus collettii* = *Olyra collettii* (locality mistake in original type, propose another char. useful in diagn. of *Olyra*) 665–675; *Esox* (all 6 spp.) (phyl. anal., morph., mtDNA & nuclear DNA data, evid. for monophyly of genus & subgenera & for hybrid. in pickerels) 743–757; *Halichoeres* (*cyanocephalus, maculipinna, garnoti, dimidiatus, penrosei*) (genetic diverg. btwn. widespread popns. variably rel. to color pttn. diverg. among rel. spp., recommend raise Brazilian popns. of *H. cyanocephalus* & *H. maculipinna* to sp. status, revalid. *H. dimidiatus* & *H. penrosei*) 770–782; *Ambystoma* (*tigrinum stebbinsi, t. mavortium*) (genetic evid. for distinctiveness of all 3 AZ subspp. of *A. tigrinum*, evid. of introgress. from introd. *A. t. mavortium* into endngrd. *A. t. stebbins*) 783–796; *Phyllorhinichthys* (*micractis, balushikini* n. sp.) (n. sp., revise & rediagn. genus, redescr. *P. micractis* w/ new specimens, key to spp.) 797–803; *Scorpaena* (*cocosensis* n. sp., *russula, sonorae, calcarata, inermis, melasma*) (n. sp., compare to similar congeners) 818–824; *Platymantis* (*mamusiorum* n. sp., *macrosceles*) (n. sp. & redescribe *P. macrosceles* w/ new specimens, calls recorded & described in detail, compare to congeners of New Britain) 825–841; *Liolaemus* (*chaltin* n. sp., *puna* n. sp., *alticolor*) (cryptic n. spp., reidentify several popns. of *Liolaemus* accordingly, diagnosis of *L. alticolor* sp. group (10 spp.) w/ key to spp.) 850–866; *Notropis calabazas* n. sp. (*N. calientis* sp. group) (n. sp., compare w/ the other 3 spp. of *N. calientis* group) 867–874; *Trichomycterus pseudosilvinichthys* n. sp. (n. sp., compare to sim. congeners & *Silvinichthys mendozensis*) 875–880; *Mystus* (*armiger* n. sp., *wolffii*) (n. sp., compare to close rel., reident. of several popns. of *M. wolffii* reduces its range) 881–885; *Echidna catenata, Gymnothorax* sp. F, *Hoplunnis* sp. D, Myrophinae sp. A, Ophichthini sp. 8, Ophichthini sp. 9 (leptocephali only) (leptoceph. descripts., discuss. of spp. they could represent, some probably un-

descr. spp.) 886–892; *Stenocercus erythrogaster* (redescript. w/ new specimens incl. range extension to Venezuela) 937–941.

TEMPERATURE, *Oryzias latipes* (temp. affs. life hist. traits indepndtly. of eff. on growth) 37–45; *Crotalus adamanteus* (eff. of temp. & body size on met. rate) 145–151; *Oligosoma suteri* (cold incub. temp. reduces size, growth & surv.) 383–390; *Liolaemus chaltin* n. sp. (body temps. of active lizards) 850–866; *Hoplocephalus bungaroides, Cryptophis nigrescens* (site temp. used by noct. snakes to select diurnal retreat sites) 916–922.

VISION, *Lopholiparis* n. gen. *flerxi* n. sp. (n. gen. has elliptical pupil) 551–555; *Chelonia midas, Caretta caretta* (wavelength sensitiv., color discrim., modified from terrest. ancestors) 905–911.